

## REMARKS AND ARGUMENTS

Claim 44 is the only independent claim examined in the application. In this response, claim 44 is amended by incorporating the subject matter of dependent claim 45. The applicant respectfully submits that amended claim 44 and the claims that depend from it are in a condition for allowance.

In the Office Action mailed August 21, 2008 (O.A.), claims 44 and 45 were rejected as being anticipated by either of two references, Folen (US 4,078,186) and Wonn (US 4,586,077). The applicant respectfully disagrees and requests reconsideration and withdrawal of these rejections and the rejections of their dependent claims.

Claim 44 recites the element of a “surface acoustic wave generating means for generating the surface acoustic wave having the frequency  $v_{SAW}$ .” This element originally appeared in claim 45. In the Office Action, the examiner alleged that this element was disclosed in both Folen and Wonn.

The device furthermore comprising at least one surface acoustic wave generating means (14, 15) for generating the surface acoustic wave having the frequency  $V_{SAW}$ .  
O.A. at 2 (citing Folen).

The device furthermore comprising at least one surface acoustic wave generating means (45) for generating the surface acoustic wave having the frequency  $V_{SAW}$ .  
O.A. at 2 (citing Wonn). Claim 44 further recites that this frequency “ $v_{SAW}$  is substantially equal to the ferromagnetic resonance frequency  $v_{FMR}$  or an integer multiple thereof.” The examiner cites no disclosure in Folen or in Wonn of the claimed relationships between frequencies. Instead, the examiner contends that the claimed relationships among frequencies are mere “operational characteristics” or “intended uses” that add no structural limitations.

Note that as the  
claimed structural features are met by Folen et al., the operational characteristics are  
met.

O.A. at 3.

Note that as the claimed structural features are met by Wonn et al., the operational characteristics are met.

O.A. at 5.

Note that the frequency is an intended use of the device. It has been held that a recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitations. Ex parte Masham, 2 USPQ2d 1647 (1987).

O.A. at 4.

The applicant respectfully submits that the claimed relationships among frequencies are, in fact, structural limitations. Both the ferromagnetic resonance frequency  $\nu_{\text{FMR}}$  and the surface acoustic wave frequency  $\nu_{\text{SAW}}$  are related to the structural characteristics of the device.

First, as described in the specification, the ferromagnetic resonance frequency  $\nu_{\text{FMR}}$  is determined by the material and the shape of the claimed ferromagnetic element.

The SAW-FMR devices have to be operated at a certain frequency to be at its ideal operating setting. This frequency needs to be equal to or close to the FMR frequency, as dictated by the magnetic element. Tuning the device used can be performed by the choice of material, the shape of the element, the thickness of the element, all these parameters are design parameters and should be chosen in order to determine the operation frequency.

Specification, at 34-35. Once this ferromagnetic resonance frequency  $\nu_{\text{FMR}}$  has been determined, claim 44 requires that the piezoelectric layer is operational to “transport[] a surface acoustic wave having a frequency  $\nu_{\text{SAW}}$ ,” and that the “surface acoustic wave generating means” is operational to “generat[e] the surface acoustic wave having the frequency  $\nu_{\text{SAW}}$ .” These are structural limitations. For a surface acoustic waves of a given frequency, the structure of the piezoelectric material determines the wavelength of those waves, and in turn, as is known in the art, key dimensions of the “wave generating

means,” such as the spacing between electrodes in an interdigitated transducer (IDT), are chosen to correspond to that wavelength.

In this embodiment, the SAW generating means is an IDT positioned onto a GaN layer. The devices work at 2.7 GHz. Fig. 21 shows a transfer characteristic of the device according to this embodiment. The IDTs have a wavelength of 4 micron.

Specification, at 35.

Thus, the claim limitation that “ $v_{SAW}$  is substantially equal to the ferromagnetic resonance frequency  $v_{FMR}$  or an integer multiple thereof” can only be met when there is cooperation between the physical characteristics of the ferromagnetic material, of the piezoelectric layer, and of the wave generating means. Because this claim limitation does impose limitations on the recited structure, and because this limitation was not given any weight in the claim rejections, the rejections of claim 44 and its dependent claims should be withdrawn, and the applicant respectfully requests reconsideration of the application.

Respectfully Submitted,

Date: February 9, 2009

/Jeffrey A. Steck/  
Jeffrey A. Steck  
Reg. No. 40,184

McDonnell Boehnen  
Hulbert & Berghoff LLP  
300 South Wacker Drive  
Chicago, Illinois 60606  
phone 312-913-0001